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EXAMINER

CHOI, PETER H

ART UNIT PAPER NUMBER

3623

DATE MAILED: 11/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/036,200

Applicant(s)

OUCHI, NORMAN KEN

Examiner

Peter Choi

Art Unit

3623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 8/25/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 21-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 21-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 25, 2006 has been entered.

2. Claims 21-23, and 29-34 are amended. Claims 21-39 are pending in the application.

### ***Response to Arguments***

3. Applicant's arguments filed August 25, 2006 have been fully considered but they are not persuasive.

4. Applicant argues that Du does not teach "forming a first route from the first object route by connecting the route segments encapsulated in each object step, including the first route segment, in the sequence of the object steps of the first object route".

The Examiner respectfully disagrees. As seen in Figure 7 of Du, a first route is formed from the first object route (Work Node 1 to Work Node 2 to Rule Node 3 to Work

Note 5 to Rule Node 5 to Work Node 6 to Rule Node 6 to Work Node 7 to Rule Node 7 to Work Node 8 to Rule Node 8) by connecting route segments associated to each object step (each Work and Rule Node has an associated route segment leading to another Work or Rule Node), including the first route segment (the segment connecting Work Node 1 and Work Node 2).

5. Applicant argues that Figure 7 of Du does not illustrate two coordinated routes, but one route with a conditional branch provided by the rule node 3, R3 (ad also at R6 & R7).

The Examiner respectfully disagrees. Page 2 of the Applicant's specification explains that "The sequence of steps is called a route. A route can define a process with conditional branching to implement business procedures". Based on this definition, the Examiner asserts that there are two distinct "routes" seen in Figure 7 of Du - {Work Node 1, Work Node 2, Rule Node 3, Work Node 5, Rule Node 5, Work Node 6, Rule Node 6, Work Node 7, Rule Node 7, Work Node 8, Rule Node 8} and {Work Node 1, Work Node 2, Rule Node 3, Rule Node 2, Work Node 9, Rule Node 6, Work Node 7, Rule Node 7, Work Node 8, Rule Node 8}. Both routes contain common route segments {Work Node 1, Work Node 2, Rule Node 3} and {Rule Node 6, Work Node 7, Rule Node 7, Work Node 8, Rule Node 8}, but visit different Work and Rule Nodes that make the paths distinct from each other. For instance, travelling from Los Angeles to Denver to New York is a different route than travelling from Los Angeles to Seattle to Detroit to

Pittsburgh to New York. The existence of overlapping nodes or common/shared nodes does not make the routes similar. The nodes, along with the sequence in which the nodes are visited, make the routes distinct from each other.

6. Applicant argues that Du does not teach connection of route segments or feedback connection of route segments.

The Examiner respectfully disagrees. As seen in Figure 7 of Du, each Work and Rule Node is connected to a following Work or Rule Node, as evidenced by the solid line, one-directional arrows (called "forward arcs" by Du) leading from each Work and Rule Node. Du also teaches a feedback connection of route segments, evidenced by the dashed line, one-directional arrows (called "reset arcs" by Du) between Work and Rule Nodes (i.e., the feedback segment between Rule Node 6 and Rule Node 5, between Rule Node 6 and Rule Node 3, Rule Node 7 and Rule Node 3, Rule Node 4 to Rule Node 3). Du explains that forward arcs represent the normal execution flow of process activities, whereas reset arcs are used to support repetitions or explore alternatives in a workflow process. Reset arcs differ from forward arcs in that they reach backwards in the process graph, where successful completion of a node at the source end of a forward arc triggers the starting of the node at the destination end of the forward arc [Column 8, lines 26-34].

7. Applicant argues that Du does not teach connecting the route in R6 to the route in R5 such that a connect route with R6 and R5 are executed by a second level workflow (LRM) without interaction with the object level workflow.

The Examiner respectfully disagrees. Du teaches that, when executed, Rule Nodes (such as R5 and R6) determine which outward arcs to fire based on the status passed along the inward arcs, the time at which each inward arc is fired and process-relevant data associated with the process instance. Rule nodes can also raise events when conditions are met as defined by the rules and an event can activate rule nodes that have subscribed to receive the event [Column 8, line 59 – Column 9, line 4]. Thus, Rule nodes trigger additional actions once inward arcs are fired, and interaction is not required with the object level workflow.

8. Applicant argues that Du does not teach what is illustrated in Figure 3A of the subject disclosure where the route segments are connected outside of the object route as illustrated by the connection of the Audit step in the ERP Stage object to the A1 Set Up step in the ERP Step A1 object or the B1 Retest step in the ERP Step B1 object to the Repair step in the ERP Step A1 object.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., route segments are connected outside of the object route) are not recited in the

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rejected claim(s). As currently written, there is nothing in the claims that require route segments to be connected outside of the object route. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

The Office Action has been updated below to further clarify claim rejections, and to address new limitations to claims 21, 29, and 32.

9. In the previous Office Action mailed May 5, 2006, notice was taken by the Examiner that certain subject matter is old and well known in the art. Per MPEP 2144.03(c), these statements are taken as admitted prior art because no traversal of this statement was made in the subsequent response. Specifically, it has been taken as prior art that:

- Workflow can be applied to a plurality of work processes, including manufacturing and production
- It is old and well known in the art that bar code readers and radio frequency (RFID) tags are amongst the plurality of input/output devices that are used in business procedure
- Bar codes and RFID tags are beneficial in that they enable companies to track, manage, and monitor the real-time status of and whereabouts of inventory, especially in the manufacturing process. They also give

valuable information about the quantity of products being bought or received

- It is old and well known in the art to connect a plurality of networked computers to the Internet

### ***Claim Objections***

10. Claims 21-39 objected to because of the following informalities: In independent claims 21, 29, and 32, a first object step and fourth object step are defined. Dependent claims 22, 30, and 33 respectively, recite a second object step. However, there is no third object step defined in the claims. It is unclear whether this was an unintentional mistake or an omission of elements essential to the practice and use of the claimed invention. If there is no intended third object, the Examiner suggests that independent claims 21, 29, and 32 recite a first and second object step, and dependent claims 22, 30, and 33 respectively recite the third object step, eliminating any recitation of a fourth (and seemingly unrelayed upon) object step. Claims 22-28, 30-31, and 33-39 are dependent on claims 21, 29, and 32 respectively, and thus are also objected to. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

11. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.



12. Claims 21-39 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. Limitations that may be critical or essential to the practice of the invention and not included in the claim(s) are not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).

In independent claims 21, 29, and 32, a first object step and fourth object step are defined. Dependent claims 22, 30, and 33 respectively, recite a second object step. However, there is no third object step defined in the claims. It is unclear whether the third object step is relied upon in the make, use, or practice of the claimed invention. The specification does not differentiate between different object steps, or relate specific object steps to specific steps of a workflow sequence.

13. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

14. Claims 21-39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In independent claims 21, 29, and 32, a first object step and fourth object step are defined. Dependent claims 22, 30, and 33 respectively, recite a second object step. However, there is no third object step defined in the claims. It is unclear whether the omission of a third object step is intentional. It is unclear whether a "first", "second", and

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"fourth" object step are related to specific steps of an associated workflow sequences, or if they are merely referring to multiple instances of object steps within a workflow sequence. For purposes of an art rejection, the examiner has not given weight to the differentiation between a "first", "second", or "fourth" object step (i.e., the "second" object step is NOT the second step of the workflow sequence, the "fourth" object step is NOT the fourth step of the workflow sequence, etc.).

Claims 22-28, 30-31, and 33-39 are dependent on claims 21, 29, and 32 respectively, and thus are also rejected.

***Claim Rejections - 35 USC § 103***

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 21-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Du et al. (U.S Patent #5,826,239).

As per claim 21, Du et al. teaches a method for coordinating a first level route directed workflow and a second level route directed workflow using an object step, the method comprising:

(a) defining a first object step **{W1}** (representing process activities in business objects to create new workflow processes by assembling business objects to describe workflow processes) with an associated first route segment **{segment leading to W2}** (business object is a representation of something active in the business domain, including its business name and definition, attribute, behavior and constraints. It provides a uniform way to encapsulate legacy systems and applications and a direct mapping, in understandable business terms, between the business model and the possibly sophisticated operational procedures of the workflow process system), a sequence of steps (each workflow process includes a sequence of activities) to be connected to other route segments **{W1 is connected to W2 by a route segment}** (some aspects of the workflow process can be preplanned and deliberately structured; parts of the workflow process involving certain departments can be preplanned) [Column 6, lines 40-41, Column 7, lines 11-17, Column 10, lines 23-34, Figure 7];

(b) defining a fourth object step **{W2}** with an associated fourth route segment **{the segment between W1 and W2, the segment between W2 and R3}**, a sequence of steps to be connected to other route segments **{W2 is connected to R3 by a route segment}** [Figure 7];

(c) defining a first level workflow means directed by an object route **(the specific structure and flow of each workflow process can be preplanned; parts of the workflow process involving certain departments can be preplanned; a workflow process is a description of the sequencing, timing, dependency, data, physical agent allocation, business rule and organization policy enforcement requirements of business activities needed to enact work)**, a sequence of object steps [Column 7, lines 4-5 and 16-17, Column 8, lines 11-15, Figure 7];

(d) defining a second level workflow means directed by a route **(the specific structure and flow of each workflow process can be preplanned; parts of the workflow process involving certain departments can be preplanned; a workflow process is a description of the sequencing, timing, dependency, data, physical agent allocation, business rule and organization policy enforcement requirements of business activities needed to enact work)**, a sequence of steps [Column 7, lines 4-5 and 16-17, Column 8, lines 11-15, Figure 7];

(e) defining a first object route, a sequence of object steps **(each workflow process includes a sequence of activities; workflow process is specified by the process design modules via the workflow process definition interface)**, including the first object step and fourth object step [Column 6, lines 40-41, Column 7, lines 59-67, Figure 7];

(f) forming a first route **{W1, W2, R3, W5, R5, W6, R6, W7, R7, W8, R8}** from the first object route by connecting the route segments associated with each object step, including the first route segment and fourth route segment, in the sequence of the

object steps of the first object route (**workflow process is represented as a directed graph consisting of a set of nodes connected by arcs; work nodes represent activities to be performed and rule nodes are used to specify workflow processes that are more complex than a simple sequence**) [Column 8, lines 15-17, 45-47, and 59-61, Figure 7];

(g) providing the first object route to direct the first level workflow means **{the workflow process represented by Figure 7 is “provided”, or applied to the HP OpenPM engine}** [Figure 7, Column 9, lines 36-43];

(h) providing the first route to direct the second level workflow means, such that when the first level workflow starts the first object route, the second level workflow starts the first route and when the second level workflow completes the first route, the first level workflow completes the first object route **{the workflow process represented by Figure 7 is “provided”, or applied to the HP OpenPM engine}** [Figure 7, Column 9, lines 36-43].

As per (b) and (c), Du et al. does not explicitly teach the inclusion of an ERP or shopfloor system in the definition of workflow.

However, it has been admitted as prior art, as a result of improperly and/or untimely challenged Official Notice, that workflow can be applied to a plurality of work processes, including manufacturing and production. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings

of Du et al. to define workflows for a shopfloor system and an ERP system, because the resulting combination would enable companies to define sequences of tasks and activities contributing towards the accomplishment of a process while keeping track of resource status and assigning available resources to tasks, and further because efficient resource management and assignment is important to workflow process execution, according to Du [Column 21, lines 55-56].

As per claim 22, Du et al. teaches the method of claim 21, wherein a second object step with an associated second route segment follows the first object step in the sequence of object steps of the first object route (**forward arcs represent the normal execution flow of process activities and form a directed acyclic graph. Successful completion of a node at the source end of a forward arc triggers the starting of the node at the destination end of the forward arc; also see the arrow pointed connections linking each of the rule nodes and work nodes**) and the second route segment provides a feedback connection to the first route segment in forming the second route (**reset arcs are used to support repetitions or explore alternatives in a workflow process. Reset arcs differ from forward arcs in that they reach backwards in the process graph; also see the dashed connection between rule nodes R3, R6 and R7 in Figure 7**) [Column 8, lines 26-34, Figure 7].

As per claim 23, Du et al. teaches the method of claim 21 wherein the first object step with an associated third route segment as an alternative route segment such that

either the first route segment or the third route segment is selected when forming the first route {in Figure 7, rule node 3 may be proceeded by either rule node 2 or work node 4} [Figure 7].

As per claim 24, Du et al. teaches the method of claim 21 wherein the first route segment can indicate to the first object step when the first route segment begins directing the second level workflow {at rule node 8, the first route segment is completed and event 3 (138) is raised, which leads to the beginning of 124} [Figure 7].

As per claim 25, Du et al. teaches the method of claim 21 wherein the first route segment can indicate to the first object step when the first route segment completes directing the second level workflow {rule module 6 is executed after work module 9}(status information of each process instance and load information can be queried using the process status monitor modules via the process status monitoring interface) [Figure 7, Column 7, lines 59-67].

As per claims 26-28, Du et al. teaches the step of querying status information of each process instance and load information by using the process status modules via the process status monitoring interface [Column 7, lines 63-67].

Du et al. does not explicitly teach the use of barcode and radio frequency identifiers. However, it has been admitted as prior art, as a result of improperly and/or untimely challenged Official Notice, that it is old and well known in the art that bar code readers and radio frequency (RFID) tags are amongst the plurality of input/output devices that are used in business procedure. Bar codes and RFID tags are beneficial in that they enable companies to track, manage, and monitor the real-time status of and whereabouts of inventory, especially in the manufacturing process. They also give valuable information about the quantity of products being bought or received. Therefore, one of ordinary skill in the art at the time of invention would modify the teachings of Du et al. to include barcodes and radio frequency identifiers to obtain the benefits of said identifiers to track, manage and monitor the real-time status of inventory within established workflow processes.

Claims 29-39 recite limitations already addressed by the rejection of claim 21-28 above; therefore, the same rejection applies.

In addition, as per claim 33, Du et al. provides a system and method for distributed resource management in a computer network that includes multiple computers operating under control of workflow management software systems [Column 4, lines 38-43]. Du et al. also implements the HP OpenPM workflow management system, an open, enterprise-capable, object-oriented workflow process management system to manage business activities that support complex enterprise processes in a



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distributed, heterogeneous computing environment [Column 7, lines 24-29]. The core of the HP OpenPM system is the HP OpenPM engine, which enable the HP OpenPM engine to interact with workflow process designer, workflow process instance execution, workflow process monitor, resource management and business object management modules [Column 7, lines 45-52].

Du et al. is not explicitly implemented via the Internet. However, Official Notice is taken that it is old and well known in the art to connect a plurality of networked computers to the Internet. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Du et al. to include the use of the Internet, as the resulting combination would enable the management of workflow amongst a plurality of distinct and remotely located business organizations whose activities are performed in parallel, and would also provide global communication amongst said business organizations.

As per claim 29, Du teaches a method for creating a detailed route to direct a detailed workflow, from an abstraction route defined to direct an abstraction workflow, using an object step, the method comprising:

(a) defining a first object step **{W1}** (**representing process activities in business objects to create new workflow processes by assembling business objects to describe workflow processes**) with an associated first route segment **{segment leading to W2}** (**business object is a representation of something active in the business domain, including its business name and definition, attribute, behavior and constraints. It provides a uniform way to encapsulate legacy systems and applications and a direct mapping, in understandable business terms, between the business model and the possibly sophisticated operational procedures of the workflow process system**), a sequence of steps (**each workflow process includes a sequence of activities**) to be connected to other route segments **{W1 is connected to W2 by a route segment}** (**some aspects of the workflow process can be preplanned and deliberately structured; parts of the workflow process involving certain departments can be preplanned**) [Column 6, lines 40-41, Column 7, lines 11-17, Column 10, lines 23-34, Figure 7];

(b) defining a fourth object step **{W2}** with an associated fourth route segment **{the segment between W1 and W2, the segment between W2 and R3}**, a sequence of steps to be connected to other route segments **{W2 is connected to R3 by a route segment}** [Figure 7];

(c) defining a first abstraction route, a sequence of object steps including the first object step and fourth object step {W1, W2, R3, W5, R5, W6, R6, W7, R7, W8, R8}, to direct an abstraction workflow to implement the abstraction level of a process (each workflow process includes a sequence of activities; workflow process is specified by the process design modules via the workflow process definition interface; workflow process 18 is a description of the sequencing, timing, dependency, data, physical agent allocation, business rule and organizational policy enforcement requirements of business activities needed to enact work) [Column 6, lines 40-41, Column 7, lines 59-67, Column 8, lines 11-15, Figure 7];

(d) creating a first detailed route from the first abstraction route by connecting the route segments, including the first route segment and fourth route segment associated with each object step in the sequence of the object steps of the first abstraction route such that the first detailed route directs the detailed workflow to implement the detailed level of the process and the first abstraction route directs the abstraction workflow to implement the abstract level of the process (there are two kinds of arcs, forward arcs and reset arcs. Forward arcs represent the normal execution flow of process activities. Successful completion of a node at the source end of a forward arc triggers the starting of the node at the destination end of the forward arc. Reset arcs are used to support repetitions or explore alternatives in a workflow process) [Column 8, lines 22-34].

Du et al. is not explicitly implemented via the Internet. However, Official Notice is taken that it is old and well known in the art to connect a plurality of networked computers to the Internet. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Du et al. to include the use of the Internet, as the resulting combination would enable the management of workflow amongst a plurality of distinct and remotely located business organizations whose activities are performed in parallel, and would also provide global communication amongst said business organizations, further since the workflow process taught by Du can span several business organizations with multiple activities potentially performed in parallel [Column 6, lines 50-52].

Du et al. does not explicitly teach the inclusion of an ERP or shopfloor system in the definition of workflow.

However, it has been admitted as prior art, as a result of improperly and/or untimely challenged Official Notice, that workflow can be applied to a plurality of work processes, including manufacturing and production. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Du et al. to define workflows for a shopfloor system and an ERP system, because the resulting combination would enable companies to define sequences of tasks and activities contributing towards the accomplishment of a process while keeping track of resource status and assigning available resources to tasks, and further because

efficient resource management and assignment is important to workflow process execution, according to Du [Column 21, lines 55-56].

Claims 30 and 31 repeat limitations already addressed by the rejection of claims 22 and 23 above; therefore, the same rejection applies.

As per claim 32, Du teaches a system using an object step for coordinating an abstraction level workflow directed by an object route and a detailed level workflow directed by a route, the system comprising:

(a) a first computer system connected to a network (**workflow process management system 10 implemented in a network 11 of computer systems 12a-d**), and executing an abstraction level workflow program, directed by an object route (**each workflow process includes a sequence of activities; workflow process is specified by the process design modules via the workflow process definition interface; workflow process 18 is a description of the sequencing, timing, dependency, data, physical agent allocation, business rule and organizational policy enforcement requirements of business activities needed to enact work**), a sequence of object steps {**W1, W2, R3, W5, R5, W6, R6, W7, R7, W8, R8**} [Column 6, lines 19-20, Column 6, lines 40-41, Column 7, lines 59-67, Column 8, lines 11-15, Figure 7];

(b) a second computer system {**computer system 12b**} connected to the network (**network 11**) and executing a detailed level workflow program {**HP OpenPM**

**workflow management system}** directed by a route, a sequence of steps (**each workflow process 18 includes a sequence of activities, each of which is ordinarily performed by one of the computer systems 12 a-d**) [Column 6, lines 19-20, 40-42];

(c) a first object step **{W1}** with an associated first route segment **{segment leading to W2}**, a sequence of steps to be connected to other route segments (**each workflow process includes a sequence of activities; workflow process is specified by the process design modules via the workflow process definition interface**) [Column 6, lines 40-41, Column 7, lines 59-67, Figure 7];

(d) a fourth object step **{W2}** with an associated fourth route segment **{segment leading to R3}**, a sequence of steps to be connected to other route segments (**each workflow process includes a sequence of activities; workflow process is specified by the process design modules via the workflow process definition interface**) [Column 6, lines 40-41, Column 7, lines 59-67, Figure 7];

(e) a first object route, a sequence of object steps (**the specific structure and flow of each workflow process can be preplanned; parts of the workflow process involving certain departments can be preplanned; a workflow process is a description of the sequencing, timing, dependency, data, physical agent allocation, business rule and organization policy enforcement requirements of business activities needed to enact work**) including the first object step (**each workflow process includes a sequence of activities; workflow process is specified by the process design modules via the workflow process definition**

**interface)** [Column 6, lines 40-41, Column 7, lines 4-5, 59-67, Column 8, lines 11-15, Figure 7];

(f) a third computer system connected to the network and executing a conversion program to create a route from an object route **{W1, W2, R3, W5, R5, W6, R6, W7, R7, W8, R8}** by connecting the route segments associated with each object step in the sequence of the object steps in the object route **(workflow process is represented as a directed graph consisting of a set of nodes connected by arcs; work nodes represent activities to be performed and rule nodes are used to specify workflow processes that are more complex than a simple sequence)** [Column 8, lines 15-17, 45-47, and 59-61, Figure 7];

(g) the third computer system and conversion program are provided **{the workflow process represented by Figure 7 is “provided”, or applied to the HP OpenPM engine}** the first object route and the conversion program creates a first route **{W1, W2, R3, W5, R5, W6, R6, W7, R7, W8, R8}** including the first route segment **{segment between W1 and W2}** and fourth route segment **{segment between W2 and R3}** [Figure 7, Column 9, lines 36-43];

(h) the third computer provides the first object route to the first computer such that the abstraction level workflow program is directed by the first object route **{the workflow process represented by Figure 7 is “provided”, or applied to the HP OpenPM engine}** [Figure 7, Column 9, lines 36-43];

(i) the third computer provides the first route to the second computer **{the workflow process represented by Figure 7 is “provided”, or applied to the HP**

**OpenPM engine}** such that the detailed level workflow and when the first route completes, the first object route is completed **{when the route reaches R8, the workflow sequence is competed}** [Figure 7, Column 9, lines 36-43].

Du et al. does not explicitly teach the inclusion of an ERP or shopfloor system in the definition of workflow.

However, it has been admitted as prior art, as a result of improperly and/or untimely challenged Official Notice, that workflow can be applied to a plurality of work processes, including manufacturing and production. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Du et al. to define workflows for a shopfloor system and an ERP system, because the resulting combination would enable companies to define sequences of tasks and activities contributing towards the accomplishment of a process while keeping track of resource status and assigning available resources to tasks, and further because efficient resource management and assignment is important to workflow process execution, according to Du [Column 21, lines 55-56].

Claims 33-39 repeat limitations already addressed by the rejection of claims 22-28 above; therefore, the same rejection applies.

### ***Conclusion***




Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Choi whose telephone number is (571) 272 6971. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on (571) 272-6729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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PC

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